

practitioner, or, preferably, of nitrous oxide and then cyclopropane, wherein the services of a specialist may be obtained; and by the purposeful inspiring of confidence. In this field of activity one is obliged to remember that two lives are under consideration and the aphorism of the use of oxygen comes to thought at once. But for worship of the golden calf, but for wars and rumours of wars, our women might with little inconvenience cause increase and multiplication for the best of living things.

And now some eulogium of those who have fought the good fight: those pharmacologists, such as Henry Gray Barbour, Denis E. Jackson and Raymond L. Stehle; those anaesthetists, such as Arthur E. Guedel and Ralph M. Waters. Like Hezekiah, they have offered and shown their riches, they have given many an earnest of unwavering resolve to have done with pain.

Waters, in particular, at the University of Wisconsin, has instituted a system of fellowships in anaesthesia whereby a doctor of medicine may spend three years with him, indulge his tutelage, and go out to save, and to teach how to save suffering and lives. There is no dilettantism about Waters. Had Carlyle known him, he would have mentioned him as one of the Heroes in his "Hero-Worship". This, I shall say: he has emulated the sculptor, *Phedias*, who while constructing the Athene in the Acropolis carved his own face in the centre of her shield, and connected it by an imperceptible artifice with the statue, so that the one became inseparable from the other. Throughout the theme of anaesthesia one finds many instances of serendipity, some associated with chance and others with sagacity.

ILLNESS OTHER THAN DIABETIC COMPLICATIONS IN INSULIN PATIENTS*

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INSULIN since it was first used in 1922 in the treatment of human diabetes has become universally distributed. In all communities many people are using it. It has made it possible for them to maintain their previous positions in our economic life. Some live very strenuous lives and are able to compete successfully with their fellow citizens. In this competition they are not protected from the prevailing diseases. We advise our insulin patients to be careful and to live an easier life. Some are able to do this, but the majority must go where their economic condition guides them. Labourers must do strenuous work, farmers till the soil, and some are driven into lumber camps and mills to be employed in the same type of work as their non-diabetic neighbour. How does illness affect them? To answer this question we are led into the subject of our paper.

True diabetic complications are peculiar to the diabetic and have been excluded from this discussion. Cardiovascular diseases such as coronary disease, gangrene, cerebral hæmorrhage, and other conditions such as carbuncles,

cellulitis, nephritis, cataracts, etc., have been omitted. Coma will be mentioned, but only in so far as it results from a non-diabetic condition. Illness has an effect on the diabetic condition of the insulin patient and an effort will be made to show if this effect is permanent or not. Consideration must be made that this paper is being written by a general practitioner and that certain scientific data which could readily be obtained in diabetic clinics will be lacking, but to offset this the writer has observed these patients as they have lived from day to day during their insulin life. The observations begin in 1923.

CONTAGIOUS DISEASES

Contagious diseases have affected my insulin patients in about the same proportion as in non-diabetics. They have had mumps, German measles, measles, whooping-cough, chicken-pox and scarlet fever. The course of these diseases was similar to that which takes in a non-diabetic. The insulin dose had to be increased during the illness, but on recovery from the contagious disease the original dose was continued without any apparent change in their diabetic tolerance. Scarlet fever was an exception, a larger insulin

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dose had to be continued as a lessened diabetic tolerance resulted.

An interesting observation was made in a child with chicken-pox. His mother had made daily urine tests from the time the child had started insulin. About two weeks before the chicken-pox eruption appeared she stated that for a week the child was showing some sugar in his urine and it was getting worse. Insulin was increased three times during the next two weeks before the child became sugar-free. Three weeks from the appearance of sugar the eruption of chicken-pox appeared. The insulin was kept at the same increased dose throughout the eruptive stage. During the next four weeks the dosage was gradually reduced to its original level. Whether this upset in carbohydrate metabolism is general throughout the incubation period of contagious diseases I do not know, but the above fact is of interest, even if it should be a coincidence. We know that during the incubation period changes may appear, as is exemplified clinically by the lassitude of typhoid fever.

All my insulin patients have been vaccinated against small-pox and most of them inoculated for diphtheria. I have seen no disturbances in either instance. The patient with scarlet fever did not receive scarlet fever antitoxin as it was not then available. He ran a typical course of a moderately severe attack and made a good recovery.

EPIDEMIC INFECTIONS

The epidemic diseases which appear at certain seasons of the year are disturbing to the insulin patient. The summer enteritis, the winter coryza, the so-called "grippe" or influenza, tonsillitis, adenitis, otitis media, etc., have attacked my insulin patients. Unlike most of the true contagious diseases they seem to affect permanently the diabetic tolerance. The increased insulin dose can be reduced but usually cannot be lowered to its former level. The following two cases will illustrate this type of illness in insulin patients.

A young man began insulin at the age of 32. He worked hard either as a farmer or as a labourer, cutting pulp in the woods. His insulin dosage was gradually lessened during the first five years of his insulin life. Then, while working in the woods, he contracted enteritis which had been prevalent in his community for several days. On the second day he began vomiting and was unable to retain food in his stomach. The diarrhoea was severe. He discontinued his insulin on the assumption that he did not need it when he could retain no food. The following day he lapsed into coma and was removed from the woods. Under insulin therapy and artificial

feedings he recovered from his coma and later from his enteritis. His insulin dosage was increased greatly for a time but three years later he was taking only a slightly increased amount. The fear of an overdose of insulin was uppermost in his mind at the onset of his illness instead of the fear of coma. As practitioners we should emphasize more the dangers of coma. If he had been instructed not to discontinue his insulin under any circumstances, and with illness to notify his physician he could have been saved the peril of coma. The fear of reaction is over-emphasized and not enough emphasis is placed on the danger of coma.

During this same epidemic of enteritis a young woman, a severe diabetic, having taken insulin about eight years, contracted enteritis. She went to bed immediately, slightly lessened her insulin, and placed herself on a diet of boiled milk and toast. The course of her illness was similar to that of her non-diabetic sister who also had enteritis. This young woman works hard at her profession, but has had to continue with slightly more insulin as a result of her infection.

The so-called "grippe" or influenza prevails among insulin patients in about the same proportion as among non-diabetics. The prostrating nature of the onset of the disease usually puts them to bed. The insulin patients seem to have a little more difficulty in throwing off their infection. The fever will last a few days longer and they will be in bed longer than the non-diabetic. They usually have to continue with a larger insulin dose than formerly. Some appear to handle these infections much better than others and may recover as a non-diabetic recovers with no lessening of their tolerance.

Head-colds, laryngitis and tonsillitis affect insulin patients, but the severity of the infection is so variable that it is difficult to generalize on their effects, but usually their tolerance is lessened. In these infections one must always emphasize the danger of coma if the insulin dose is lowered too much. A woman with otitis media lapsed into coma as a result of too great a lessening of her insulin. She made a good recovery. It should be pointed out that the danger of reactions in infections is not so great as when infection is absent and the patient is more active.

ASTHMA

A young woman for several winters had had repeated attacks of bronchial infections with asthma. In 1923 she developed glycosuria which was controlled by diet. A few months later, while on a vacation, she disregarded her diet and passed into coma. After recovering from coma she was placed on insulin and has been taking it regularly to the present day. Since she started insulin in 1924 she has never had an attack of bronchitis or asthma.

A woman, aged 65, suffered from bronchitis each winter but was no better after taking insulin. About one year after starting insulin she developed asthma following an upper respiratory infection. For five months the asthmatic attacks continued and then she died a myocardial death.

PNEUMONIA

Pneumonia has been a serious disease. Lobar pneumonia in a man aged 54 was fatal. The diabetic condition was controlled by increasing the insulin and giving glucose. The patient died a myocardial death as many non-diabetic pneumonia patients have died. A striking example of the usefulness of insulin in lobar pneumonia in a diabetic was evidenced this winter.

A middle-aged woman for some years controlled her diabetes without insulin. She contracted lobar pneumonia and on the third day began to pass large quantities of sugar in her urine. It took thirty units of the old insulin twice daily to control her glycosuria. She needed this dose about one week. Three weeks after the start of the insulin she was able to discontinue it. Her diabetic diet is not so liberal as formerly, but at present she is taking no insulin and showing no sugar.

Broncho-pneumonia has been present secondary to other conditions and was usually a serious condition.

A married woman, aged 30, died on the third day after the onset of an influenzal infection. On the second day broncho-pneumonia with severe toxæmia was present. Her urine was free of acetone bodies throughout the illness but was never sugar-clear in spite of the large amount of insulin taken.

A married woman, aged 56, had been kept sugar-free with insulin for a little over one year. Insulin had cleared a severe pruritus and a distressing numbness of her left leg. She contracted a chill when sugar-clear but continued her housework for four days. She felt tired. On the fourth day she developed abdominal cramps with diarrhoea. This lasted two days, when she became constipated. When seen first at this stage she was feverish, and had a large quantity of sugar in her urine with a trace of acetone bodies. She had a left-sided broncho-pneumonia. Increased insulin dosage reduced the sugar in her urine considerably and the acetone bodies disappeared. During the next eight days there was a spread of the broncho-pneumonia, patches appearing in both lungs, and she died fourteen days after her chill.

A married woman, aged 78, fell and fractured her femur, and on the third day developed broncho-pneumonia in both lungs. She had been taking insulin thirteen years and it had kept her sugar-clear. Insulin had healed a large ulcer on the ball of her foot and had markedly retarded the progress of her diabetic cataracts. When broncho-pneumonia developed glucose reappeared in a moderate quantity in her urine. This disappeared with more insulin, and by sitting the patient up in bed the broncho-pneumonia resolved. She made a good recovery. Her femur was united with some shortening.

Several patients have had a low grade broncho-pneumonia with recovery. The broncho-pneumonia persisted for several weeks but as far as the diabetes was concerned a larger quantity of insulin controlled it. In infections, I do not believe in cutting down the carbohydrate allowance. I would rather give the patients more insulin. They need the carbohydrate but their fat allowance should be decreased. Pneumonia is a much more serious disease in insulin patients than in non-diabetics.

TUBERCULOSIS

Tuberculosis is prevalent in our district but fortunately in practice I have not had it associated with an insulin patient, but I have had it associated with mild diabetics not taking insulin.

SYPHILIS

Syphilis has not been present in any of my insulin patients.

An unmarried man, aged 26, had a severe prostatitis of non-gonorrhoeal origin in which he ran a high fever with chills for some days. He made a good recovery in about three weeks without any permanent insulin change.

SURGICAL INFECTIONS

My insulin patients have stood well abdominal infections which needed surgical interference. These include removal of appendix, gall bladder, ovaries, Fallopian tubes and uterus. Fortunately I have not had any insulin patients with a ruptured appendix or peritonitis. My insulin patients have stood well the removal of infected tonsils.

A man, aged 65, died of septicæmia following a severe cellulitis of the hand and forearm. The original injury was an incised wound of his thumb. Insulin controlled his diabetes.

CALCULI

Calculi have been present and caused difficulties. The following history is of interest.

A married man, a labourer, aged 28, began insulin in 1925. In 1931 he was seized with severe renal colic, and was given morphine freely by a doctor who was not aware of his diabetic condition. He lapsed into coma and was removed to the hospital where his coma was controlled. X-ray showed a large calculus in the right ureter about an inch from the bladder. He refused operation as the pain had eased. About two weeks later the pain returned and he consented to operation. The stone was removed by the abdominal route under spinal anaesthesia. He made a rapid recovery with no alteration in his diabetic tolerance. He is now carrying on his former labouring occupation.

The importance of insulin patients informing their medical advisers of their insulin needs is apparent before morphine or any other drug which produces unconsciousness is given.

Gall-stone colic has been seen in one insulin patient and she stood the removal of her gall bladder with its calculi in a manner similar to a non-diabetic.

PREGNANCY AND MENOPAUSE

Full-time pregnancy has been encountered in two cases, one in a multipara who had had two normal pregnancies before her diabetes became apparent. She had been taking insulin two years when her third baby was born. Her

period of pregnancy and delivery was uneventful. The other was much different.

A young school teacher started insulin in 1923. Before taking insulin she had had amenorrhœa for several years, but with insulin her menstrual cycle was fully restored. Persuasion from marriage was successful for two years. After being married four years she became pregnant. I followed her three months and then she moved to another community where she died at term of eclampsia.

Miscarriages have been present. One insulin patient had similar experiences with her two pregnancies. In each case after becoming pregnant she broke her diet and about the third month lapsed into coma. Each time, twenty-four hours after her recovery from coma, she miscarried.

I have always advised young women taking insulin not to marry, as the risk of pregnancy is much greater than if they were non-diabetic. In the case of young men two factors should be considered, first, that diabetes is a hereditary disease, and, second, the economic factor. As diabetes is a hereditary disease their children are apt to become diabetics at some period of their lives. At present I have a number of children of diabetic fathers under observation and none have as yet shown diabetes. The economic factor is important. A single young man often has to board or to travel to carry on his work. If married, he has a home and someone interested in keeping his diet properly prepared. After marriage some boys have given up day-labour to live on small farms under desirable circumstances. I believe the hereditary risks should be explained to young men before marriage. After all, a diabetic child can grow to be a useful citizen and can live and work as well as his non-diabetic neighbour.

Menopausal disturbances have been present in the form of nervous depressions, fears and vaso-motor changes, but they seem to have no effect on the diabetic condition.

FRACTURES AND ALCOHOLISM

Fractures offer no difficulty. Fractures of ribs, radius and ulna, femur, tibia, fibula, clavicle, humerus, skull, have had similar courses and results as in non-diabetics. There is a lesson to be learned from a patient with a fractured skull.

A young diabetic man watching a fire did not see a branch of a large tree catch fire and fall. It struck him on the head rendering him unconscious. X-ray revealed a stellate fracture through the frontal bone. He was unconscious for four days and becoming con-

scious he made an uneventful recovery. Insulin was given him regularly while he was unconscious, the urine being the guide to the dosage. I feel if this had not been done he would have lapsed into coma and probably died.

Another type of unconsciousness was encountered.

A commercial traveller, an insulin patient of long standing, had been in the habit of taking spirits at regular intervals. While mentally depressed he overimbibed and fell into a drunken stupor. For several days he remained in his hotel room, where he lapsed into coma. The coma was later recognized and after vigorous treatment he was rescued from it. He is now carrying on with his former diet and insulin dosage. His associates did not know he was taking insulin, hence he was allowed to slip into coma.

MALIGNANCY

Malignant disease has been present but I cannot see that it has affected the diabetes or that the diabetes has affected it.

A patient with carcinoma of the prostate refused operation and died of metastases. A carcinoma of the cheek was removed by x-ray therapy as radium was not available.

A woman, aged 63, died of carcinoma of the stomach with metastases and cachexia, the clinical duration being about one and one-half years. She had diabetes for twelve years and took insulin the last six years.

A man, aged 65, had a large adenomatous prostate. Operation was refused. After an attack of acute retention of urine he catheterized himself regularly for two months. His bladder became infected and he developed uræmia and died. At all times the insulin kept his urine sugar-free.

WORMS

A young man had been taking insulin three years when he passed segments of a tapeworm. Several unsuccessful attempts to dislodge the head was made. Shortly after the last attempt he moved away to another community, and I have been unable to contact him to learn the final result. I have had no cases of round worms in my insulin patients. Thread worms have been present and have been treated with varying success by the usual methods. Worms have not affected the diabetic condition.

ARTHRITIS

Osteoarthritis with an extensive involvement of the vertebræ and sciatic pain was not influenced by insulin controlling the diabetic condition. Minor arthritic lesions, as well as moderate sciatic pain, have made their onset during the insulin life of the patient and have acted in a manner similar to these lesions in a non-diabetic.

EPILEPSY

A young man, aged 30, had suffered his first epileptic seizure at the age of 25 and had lessened their frequency with phenobarbital. At the age of 29 he became diabetic and the diabetes was controlled by insulin. He still had his epileptic seizures. At the age of 30 he developed coma and died.

COMA

Coma today is a challenge to the general practitioner. The challenge is not the treatment of coma but the recognition of those factors which produce it. An insulin patient afflicted with a non-diabetic illness should never be allowed to enter coma, as this can be avoided. Practitioners should recognize that in these illnesses the danger is not reaction, but coma. There is a tendency to feel that if the patient had not had diabetes he would have withstood his non-diabetic illness. What has likely happened is that he was allowed to slip into coma and given no chance to overcome his non-diabetic illness. In these illnesses frequent examination of the urine is essential, and, in general, increasing doses of insulin are necessary. Blood sugar determinations are very useful in these cases, but as a rule the difficulty of obtaining the

results means loss of time and fresh information. The urine can be examined at the bedside. The urine alone can be a guide and will keep these patients from coma.

Insulin patients should be instructed to carry something on their persons stating that they are taking insulin. It is regrettable that there is not some internationally recognized mark which could be worn to protect them from those serious experiences which loss of consciousness entails. The increasing number of automobile accidents further emphasizes this precaution. Accidents usually take place away from home.

In conclusion, how does illness other than diabetes and its complications affect insulin patients? Insulin patients, with few exceptions, stand non-diabetic illness well provided an effort is made to control their diabetes and especially to safeguard them against coma. Coma in these cases is avoidable. With the recognition of this fact the number of deaths from coma in our smaller communities would be greatly reduced and brought more in line with that of the larger centres.

FACTS, FADS AND FANCIES IN THE TREATMENT OF ACNE VULGARIS*

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THE pasty, pimply, pitted individual at puberty has been observed from ancient times. As far back as the Greeks and Romans acne vulgaris was known. What name the Greeks had for it is not recorded, but Celsus described it under *Varus*. To Gorrhaeus in 1578 goes the credit of its present title.¹

Comedo formation appears so constantly at the regular determined age that Bloch and others have long considered the condition to be the physiological response to circulating growth and sex hormones. Modern advanced youth is not spared one whit the less from this disfigurement than were his forebears, but cure of the condition is now available, which was quite unknown in other times. The seborrhœic diatheses, handed down in "oily families" and those with sensitive sebaceous mechanism form the founda-

tion for the black head, papular, pustular and cystic display.

ENDOCRINE CONSIDERATIONS

At times, endocrine hormones, drugs, products of food and disease metabolism goad the pilosebaceous apparatus. Response is not long delayed and horny thickening occurs at the follicular openings. From this, a damming back of oil wastes and skin debris occurs. This forms a fertile pastureland for acne bacilli and their staphylococcic cousins.

Acne vulgaris may occur even in infancy, but puberty is the recognized time for the advent of these "chastity pimples of Pick". Its onset is intimately related to gonad development. Robust and frail alike are attacked. The most severe cases seem to occur in the robust and in athletes. No senile person exhibits these lesions; no eunuch has acne vulgaris. In the male sexual abstinence has been stated to aggravate the condition. To this view Whitfield² does not

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